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Editor - Captain L. B. Marshall, MC, USN

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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be nor susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Globulin, Poliomyelitis, Immune, Availability and Distribution of

BUMED INSTRUCTION 6230.3

5 June 1953

From: Chief, Bureau of Medicine and Surgery
To: Commandants, Continental Naval Districts and River Commands
Subj: Globulin, poliomyelitis, immune (human), for the prophylaxis of acute anterior poliomyelitis in dependents of military personnel
Encl: (1) "The Distribution and Use of Gamma Globulin," a Statement by the Division of Medical Sciences, National Research Council, dated 20 April 1953
(2) "Plan for the Allocation of Gamma Globulin," Office of Defense Mobilization, dated 15 April 1953

This instruction, issued to Commandants, Continental Naval Districts and River Commands, establishes the policy and procedures for the administrative control and distribution of poliomyelitis immune globulin in the prophylaxis of acute anterior poliomyelitis among dependents of military personnel.

Control of subject material is vested in the Commandants of each continental District and River Command for all Navy and Marine Corps activities within the geographical limits of the District or River Command.

Gamma globulin assayed for poliomyelitis antibody potency and labeled "Globulin, Poliomyelitis, Immune (Human), 10 cc., Stock Number 1-605-525," is now being assayed, processed, and packaged and should be

available for issue sometime during late July or August 1953. Apportionments have been established for each naval district and river command on the basis of the number of dependent outpatient treatments reported on Form DD-444, "Outpatient Report."

Due to the extremely limited quantity of globulin, poliomyelitis, immune, available to the nation, the Department of Defense policy is that its use by the military, for prophylaxis for dependents of military personnel, shall be on the same basis as directed by state and local health authorities for general civilian use. Inasmuch as the Office of Defense Mobilization leaves the criteria for use in the general civilian population to the health officers of each state, with only general recommendations for guidance, it is expected these criteria will vary from state to state. The commandant of each naval district and river command should direct that liaison be maintained with state, county, and city public health authorities in each area where dependents of military personnel are treated at Navy or Marine Corps installations, and that criteria of use for dependents of military personnel be in strict conformity to the local policies established by the public health authorities.

Dependents of other military personnel, normally receiving outpatient care at naval and Marine Corps activities should be considered equally eligible with dependents of naval personnel for prophylaxis with globulin, poliomyelitis, immune (human).

Globulin, immune, serum, 10 cc., Stock Number 1-605-505 shall not be used for the prophylaxis of poliomyelitis. This material has been made available for use in the prophylaxis of measles and hepatitis.

BUMED INSTRUCTION 6230.4

12 June 1953

From: Chief, Bureau of Medicine and Surgery
To: Commandant, Tenth Naval District
Commandant, Fourteenth Naval District
Commandant, Fifteenth Naval District
Commandant, Seventeenth Naval District
Commander, Service Force, U.S. Atlantic Fleet
Commander, Service Force, U.S. Pacific Fleet

Subj: Globulin, poliomyelitis, immune (human), for the prophylaxis of acute anterior poliomyelitis in dependents of military personnel

Encl: (1) "The Distribution and Use of Gamma Globulin," a Statement by the Division of Medical Sciences, National Research Council, dated 20 April 1953

(2) "Plan for the Allocation of Gamma Globulin," Office of Defense Mobilization, dated 15 April 1953

This instruction, issued to Commandants, extra-continental districts, and Commanders, Service Forces, Atlantic and Pacific Fleets establishes the policy and procedures for the administrative control and distribution of poliomyelitis immune globulin in the prophylaxis of acute anterior poliomyelitis among dependents of military personnel in noncontinental areas.

Undoubtedly the incidence of disease within the geographic limits of overseas areas will likewise influence decision as to the best method of utilizing apportioned stocks. Therefore, no uniform criteria are prescribed herein. Enclosures (1) and (2) furnish general information and suggestions upon which the development of a program of eligibility and distribution may be made. It is important that close coordination and cooperation be maintained with the Army and Air Force in promulgating uniform procedures, as each of these services also has available small quantities of poliomyelitis immune globulin.

Gamma globulin assayed for poliomyelitis antibody potency and labeled "Globulin, Poliomyelitis, Immune (Human), 10 cc., Stock Number 1-605-525," is now being assayed, processed, and packaged and should be available for issue sometime during late July or August 1953. Apportionments have been established for each noncontinental area on the basis of the number of dependents reported on Form OPNAV Report 4400-1.

Control of subject material for all Navy and Marine Corps activities in naval districts is vested in naval district commandants; for all Navy and Marine Corps activities in nonnaval district areas, control is vested in Commander, Service Force, Pacific and Commander, Service Force, Atlantic

Dependents of all United States personnel authorized to receive outpatient care at naval and Marine Corps activities should be considered equally eligible with dependents of naval personnel for treatment with globulin.

Globulin, immune, serum, 10 cc., Stock Number 1-605-505 shall not be used for the prophylaxis of poliomyelitis. This material has been made available for use in the prophylaxis of measles and hepatitis.

For information concerning Enclosures (1) and (2) reference may be made to the Journal of the American Medical Association, Vol. 152, No. 1 of 2 May 1953 and Vol. 152, No. 7 of 13 June 1953. The U.S. Navy Medical News Letter, Vol. 21, No. 9 of 8 May 1953, page 32 and Vol. 21, No. 12 of 26 June 1953, page 13 also contain information concerning gamma globulin. (See also page 32, this issue, Preventive Medicine Section)

The Treatment of Chronic Cor Pulmonale

Modern concepts of therapy in chronic cor pulmonale, or heart disease secondary to lung disease, have developed largely as a result of increased knowledge of the physiologic disturbances in pulmonary function which give rise to the circulatory sequelae in these diseases. Because the cardiocirculatory complications spring from the underlying pulmonary dysfunction, therapy, if it is to be successful, must be directed at the former as well as at the latter. The older pessimistic attitude concerning therapy in these patients resulted from attacking exclusively or primarily the cardiac insufficiency to the neglect of the parent entity, pulmonary insufficiency. All too often a cyanotic patient with dyspnea and cough, some abnormality in x-ray films of the lungs, and right heart failure is diagnosed as having chronic cor pulmonale without further effort at clarification of the nature of the underlying pulmonary disease. The treatment of chronic cor pulmonale must include an attack upon the pulmonary insufficiency which can be effective only if the nature and extent of the lung disease and its consequences are known.

The treatment of chronic cor pulmonale really begins with a correct diagnosis of the lung disease causing it. Prognosis of the ultimate outcome is also dependent upon accurate diagnosis. One cannot outline the same therapy for a patient with pulmonary fibrosis as for one with pulmonary emphysema as far as improvement of pulmonary function is concerned. On the other hand the treatment of right heart failure consists of much the same regimen in both cases.

Although there are many forms of lung disease which can secondarily compromise the circulation and produce chronic cor pulmonale, the most common include chronic obstructive pulmonary emphysema, different types of pulmonary fibrosis, and granulomatous lesions which may eventually result in fibrosis. However, right heart enlargement, with or without chronic cor pulmonale, is uncommonly associated with uncomplicated pulmonary tuberculosis, bronchiectasis, or bacterial pneumonia. The circulatory complications associated with kyphoscoliosis are probably related to an accompanying emphysema in most instances, although no extensive study of the circulation in this group of patients is available. Finally, the authors did not concern themselves with the rarer types of chronic pulmonary hypertension such as those due to pulmonary emboli or secondary to pulmonary metastases.

It is evident, then, that the treatment of chronic cor pulmonale usually involves the treatment of pulmonary fibrosis or emphysema. One cannot stress too emphatically that the presence of one disease, for example, emphysema, does not automatically imply the coexistence of the other. The tendency to write down "pulmonary fibrosis and emphysema" as a diagnosis is to be deplored unless both conditions are shown by objective measurements to be present. This is particularly important in setting up a regimen of

therapy for these patients and in understanding the mechanisms whereby the cardiocirculatory complications develop in each case.

In this article stress has been laid upon the concept that the treatment, as well as the prognosis, of chronic cor pulmonale depend upon the underlying pulmonary disease. It has long been known that the chief causes of chronic cor pulmonale are chronic obstructive pulmonary emphysema and various forms of fibrosis, particularly the pneumoconioses. An understanding of the difference between these diseases, both as to their pulmonary dysfunction and their circulatory complications is essential to the success of therapy. Management of the patient with chronic pulmonary emphysema and cor pulmonale is quite different from that of the subject with fibrosis and right heart involvement.

In emphysema two features of the pulmonary insufficiency, anoxia and carbon dioxide retention, which are of paramount importance in producing the salient circulatory complications, that is pulmonary hypertension, hypervolemia, and right heart failure, can be reversed. By vigorously combating anoxia and hypercapnia, it is possible to reverse these circulatory abnormalities and prevent their recurrence. If the premonitory signs of increasing anoxia and hypervolemia are heeded and proper therapy instituted, it may even be possible to prevent an initial episode of heart failure in the emphysematous subject.

Unfortunately, little as yet is known about the circulation in the pulmonary fibroses. In patients with pulmonary fibrosis as well as those with granulomas of the lung it would appear that the anatomic pulmonary lesion is chiefly responsible for the pulmonary hypertension, in contradistinction to the patients with emphysema. Inasmuch as the anatomic lesions are for the most part irreversible, so is the pulmonary hypertension. This has limited the therapeutic approach in this form of chronic cor pulmonale to rigorous restriction of physical activity directed at minimizing exacerbations of pulmonary hypertension.

While emphasis has been placed upon the difference in management of the patient with emphysema or fibrosis and cor pulmonale, nonetheless it should be remembered that in any individual patient these two conditions may coexist. In that event, intensive therapy directed at the sequelae of emphysema may be very rewarding. (Circulation, June 1953, R. M. Harvey, M. I. Ferrer, and A. Cournand)

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Pulmonary Paragonimiasis

Pulmonary paragonimiasis is a disease caused by the presence within the lung parenchyma of the oriental lung fluke, Paragonimus westermani. Known variously as endemic hemoptysis, lung distoma, and pulmonary distomiasis, the disease was first introduced to medical science approximately

75 years ago following its recognition at the post-mortem examination of a Bengal tiger. It was first reported in man in 1880. The recent global war and the current conflict in Korea have exposed many of our soldiers to endemic areas. From the authors' experiences it seems probable that pulmonary paragonimiasis will be encountered among American soldiers, and, because of its rarity, may be misdiagnosed as pulmonary tuberculosis, bronchiectasis, cystic disease of the lungs, et cetera.

At any point along the migratory pathway between the intestine and the lung, larvae may become localized and thereby induce disease in the intestinal wall, peritoneal cavity, and pleura, as well as in the lung parenchyma. However, larvae exhibit a decided predilection for pulmonary tissue and involvement of the lungs constitutes by far the most common site of localization. Pleural effusion may occur, and in some of the authors' cases in Korea ova were found in aspirated pleural fluid. Pleurisy, however, seems to be a relatively uncommon complaint.

The symptoms and physical findings of paragonimiasis depend upon what stage of the disease has been reached. However, after invasion of the lung parenchyma has become fully developed the following features are characteristically found: (1) hemoptysis; (2) the presence of opercular eggs in the sputum, and (3) positive findings in the chest roentgenogram.

Hemoptysis is the predominant symptom. Intermittent, brief hemoptytic episodes are the rule, but, on the other hand, the almost daily production of rusty brown sputum for periods of weeks or even months is not unusual. In the absence of secondary infection the sputum is thin, mucoid, and even watery in nature, and contains short, stringy particles of tenacious, gelatinous material. This often appears as a characteristic sedimentlike material in the sputum and accounts for its rusty brown color. The particles are dark brown to reddish brown in color and have been described as resembling small strands of tobacco. To the authors the appearance was suggestive of a sandy precipitate at the bottom of the sputum cup. These particles represent aggregates of *Paragonimus* ova and are easily isolated for microscopic examination. The rusty brown material should not be mistaken for blood, although it is often mixed with streaks or flecks of blood. Sputum production, although variable, at times may quantitatively resemble that of the bronchiectatic patient. In the presence of secondary infection, the sputum may be purulent. In a frank case of pulmonary paragonimiasis, opercular eggs are always found in the sputum. Identification is made on examination of wet preparations of sputum. (Drying destroys the ova.) Adult parasites are only rarely coughed up in the sputum.

Shortness of breath, fever, malaise, fatigability, and anorexia may be present in patients with extensive pulmonary involvement. There is no chronic cough; rather, it occurs most often only following a vague feeling of chest discomfort, and the patient coughs in a conscious effort to expel material from the lungs. In uncomplicated pulmonary paragonimiasis, fever if present at all, rarely exceeds 99° to 100° F. Other evidences of

toxicity were observed chiefly in patients with other coexistent illness such as septic wounds, malnutrition, avitaminosis, or other infectious disease. Toxic symptoms in such patients frequently improved or disappeared entirely with successful treatment of the complicating disease, even though hemoptysis, roentgen findings, and ova in the sputum persisted unaltered. It is the authors' impression, therefore, that uncomplicated pulmonary paragonimiasis rarely causes significant systemic symptoms, and the patient most often appears surprisingly healthy, well nourished, and unaffected by the disease.

There are no roentgenologic findings that can be considered typical of pulmonary paragonimiasis. However, the picture simulates that of pulmonary tuberculosis so closely that it would be more nearly apropos to consider Paragonimus infestation in only those chest films assumed to be tuberculosis in which tubercle bacilli cannot be found, and the patient relates possible exposure in an endemic area.

The most common picture the authors have found consists of a linear, patchy infiltration, with a predilection for the bases and periphery of the lung fields.

The disease is extremely benign. The Korean and Filipino patients, after initial fright due to hemoptysis, became so accustomed to occasional blood spitting that after a while they attached little significance to its presence. Some patients never seek medical aid even though they have hemoptysis, and the diagnosis is made only incidentally while investigating some unrelated complaint. Secondary anemia does not usually develop even after many years of periodic blood spitting. One of the most characteristic and surprising features of pulmonary paragonimiasis is the history of intermittent hemoptysis in an otherwise asymptomatic patient who is well nourished, afebrile, and free of any stigmata of chronic pulmonary disease.

To date there is no known paragonimicidal agent. Various drugs have been tried, notably tartar emetic, emetine, lipiodol, and prontosil. (Ann. Int. Med., June 1953, Maj. F. T. Roque, MC, USA; R. W. Ludwick, and Capt. J. C. Bell, MC, USA)

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An Evaluation of Anticoagulant Therapy

Thromboembolism is a manifestation of a very large number of diseases with varying etiologies and affecting different portions of the vascular tree. It is axiomatic in medicine that any rational treatment must be based upon an understanding of the etiology, pathogenesis, and mechanisms involved in a disease state, yet these fundamentals have often been neglected in the consideration of thromboembolic conditions. Of perhaps equal importance is the anatomic location of a thrombus or embolus and its effect upon the circulation to local tissues. To be specific, a thrombosis in the splenic vein of

a patient with polycythemia vera confronts the physician with a vastly different problem than a thrombosis in a varicose vein in the leg, a cerebral embolus arising from a mural thrombus from within a heart in auricular fibrillation, or a chemical thrombosis produced by a faulty or irritating injection in the vein of an arm.

High among the complications encountered on medical, surgical, and obstetrical services of all hospitals one must rank thrombophlebitis in the veins near the sites of operation or malignant growths, or in the veins of the lower extremities. Once such thrombosis has been recognized, if suitable therapy is not undertaken there is nearly a 50% chance that a pulmonary embolism of sufficient size to be recognized clinically will occur. Patients who have had one pulmonary embolus, if untreated, have a 20% chance of death from subsequent pulmonary emboli. Some patients recover without apparent sequelae but there are literally thousands of individuals in the United States who are permanently partially disabled because of severe venous insufficiency with marked edema, often with painful and intractable ulceration. The serious embolic complications from mural thrombi formed within hearts which are in fibrillation or following myocardial infarction may include hemiplegia, gangrene of an extremity or a portion of intestine, as well as massive infarctions of the kidney, spleen, lungs, and many less critical areas of the vascular tree. However benign a thrombosing process may appear, it is potentially capable of propagating until it is much larger, blocking out additional segments of veins and their collateral circulation or arteries and their branches. It is, therefore, essential that thromboembolic complications be regarded seriously from the viewpoint of prevention as well as treatment.

During the past 10 years, evidence has accumulated which has clarified the indications for anticoagulant therapy. Today anticoagulants are widely used for the following conditions: (1) Coronary occlusion with myocardial infarction; (2) rheumatic heart disease with pulmonary or peripheral embolization (usually associated with auricular fibrillation); (3) venous thrombosis (thrombophlebitis, phlebothrombosis); (4) thrombophlebitis migrans; (5) pulmonary emboli from a venous or an unrecognized source; (6) sudden arterial occlusion due to embolism or thrombosis; (7) chronic congestive heart failure with a tendency to develop thromboses; (8) a familial tendency to develop thrombosis which has manifested itself in the patient; (9) prophylactically, postoperatively; (10) in vascular surgery; and (11) retinal vein or artery thrombosis.

It is now accepted that anticoagulants not only prevent the formation and propagation of clots but they actually aid in the disintegration or digestion of clots, probably by permitting freer action of enzyme systems in the blood.

The general contraindications are well known. Anticoagulants should be avoided or used with great caution only when the indications are strong, under the following circumstances: (1) Prothrombin deficiency (hypopro-

thrombinemia) due to vitamin K deficiency or severe liver disease; (2) blood dyscrasias with impairment of the normal mechanisms for hemostasis; (3) renal insufficiency; (4) vitamin C deficiency, until corrected; (5) surgical or accidental trauma to the brain or spinal cord or leaving wide raw and oozing surfaces; (6) ulcers, malignant or benign, especially of the gastrointestinal and urinary tracts; and (7) subacute bacterial endocarditis.

It has been found necessary to use especial care in determining the dosage in combination with large doses of gut-sterilizing antibiotics, e. g. aureomycin, chloromycetin, or terramycin. It also seems clear that the use of cortisone and similar compounds appears to encourage thrombosis in some patients and this tendency may constitute an indication for anticoagulant therapy as an adjuvant if it is considered important to continue cortisone therapy.

During the past decade the indications for anticoagulant therapy have been clarified. They are listed in this article.

In view of the reduction in both death rate and in the incidence of thromboembolic complications following coronary thrombosis with myocardial infarction with the use of anticoagulants in mild and moderately severe cases, the position that their use should be reserved solely for those patients who are severely ill at onset does not appear justified. This because, despite apparent mildness during the first day or two of the disease, the future course is difficult or impossible to predict with certainty and because the first complication may produce death, more serious illness, or permanent disability. Recent evidence favors the increased use of anticoagulants during more severe periods of congestive heart failure. Newer anticoagulants are now rapidly being developed which generally can be classified as acting similarly to heparin or to dicumarol. The clinical facts regarding each of the better known anticoagulants, including their advantages and disadvantages, have been outlined. More complete experimental studies should be carried out before crystalline trypsin should be released for general clinical use. The final decision whether to use anticoagulants or not, and which ones to use in a specific patient, must rest with the physician responsible for his care. Among the important factors to be considered in making this decision are: (1) The diagnosis and condition of the patient; (2) the presence of any coincidental problem requiring caution or contraindicating their use; (3) the sound evidence indicating anticoagulant therapy under these particular circumstances; (4) the qualities of the specific anticoagulants under consideration; (5) the availability of accurate prothrombin and coagulation time tests; (6) the availability of vitamin K and K₁, and transfusions for emergency use; and, perhaps of greatest importance, (7) the conscientiousness and skill in this particular field, of the physician who is responsible for their use. (Am. J. Med., June 1953, I. S. Wright)

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Nephrocalcinosis

From the literature the authors obtained reports of 48 cases of nephrocalcinosis and from the Mayo Clinic files an additional 43 cases, making a total of 91 cases for study.

It should be pointed out that clinically this is an unusual, if not rare, lesion. At the Mayo Clinic in recent years the disorder has been recognized in an average of 6 cases per year, comprising about 1 patient with nephrocalcinosis per 20,000 registrants. Comparing its incidence to that of the related but better known lesion, urinary lithiasis, among 1,418 consecutive patients with roentgenographic evidence of nephrolithiasis of one type or another there were only 7 with nephrocalcinosis, which means, for practical purposes, that at the Clinic roentgenographically demonstrable urinary lithiasis is about 200 times as common as is roentgenographically demonstrable nephrocalcinosis. Another rare although more widely publicized disorder, primary hyperparathyroidism, is recognized at the Clinic about 3 times as frequently as is nephrocalcinosis. Still another evidence of its infrequent occurrence is that in more than 18,000 necropsies performed in the Section of Pathologic Anatomy, only 6 cases of nephrocalcinosis have been found-- or 1 case of nephrocalcinosis per 3,000 routine necropsies.

There does not appear to be any racial immunity or predisposition to nephrocalcinosis. Familial tendencies are not demonstrable and it occurs with equal frequency in each sex. Two thirds of the patients are between their third and fifth decades of life when nephrocalcinosis is recognized, although it has been reported among patients of all ages, from 4 months to 79 years.

There are no pathognomonic subjective symptoms that the patient recognizes or that the physician can depend on to suggest that this lesion is present. In about 50% of the collected cases, the patients had sought medical care because of urinary symptoms, of which colic, hematuria, dysuria, and pyuria were the most common. About 20% of the patients complained of symptoms referable to the skeletal system, a few had neurologic complaints, and a few others noted gastrointestinal symptoms. More than two thirds of the patients noted weakness and fatigue and 52% admitted having polyuria and polydipsia. About a fourth of the patients had recent significant loss of weight.

As with symptoms, there are no pathognomonic findings on physical examination of nephrocalcinotic patients. In fully half of the collected cases physical examination of the patient did not reveal any abnormality. In 23% the physician recorded that the patient "appeared ill."

Diagnosis of nephrocalcinosis depends on recognition of the following roentgenographic characteristics: (1) location of deposits of calcium in the renal parenchyma; (2) the diffuse distribution of these deposits; and (3) the fact that these deposits are actually demonstrable roentgenographically.

From a consideration of the roentgenographic appearance of this lesion, one might suppose that the kidneys would be extensively damaged, renal function impaired, and prognosis poor. However, generalization is inaccurate and the condition of a number of patients with extensive roentgenographically demonstrable nephrocalcinosis has been followed for 10 or more years only to find that renal function has remained normal. It thus becomes important to recognize factors which, at the time the lesion is first recognized, indicate the subsequent course the patient is likely to follow. The authors attempted unsuccessfully to correlate prognosis in their collected cases with the patient's age and sex, duration of symptoms prior to diagnosis, coexistence of hypertension or renal lithiasis, and roentgenographic type and degree of nephrocalcinosis. If there was advanced azotemia at the time nephrocalcinosis was recognized the prognosis was usually poor, but normal or near normal concentration of urea in the blood did not regularly indicate long survival.

The most important factor affecting prognosis was identification and early effective treatment of the primary causative disorder responsible for development of nephrocalcinosis. (Proc. Staff Meet., Mayo Clin., June 3, 1953, JD Mortensen, J. L. Emmett, and A. H. Baggenstoss)

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Anemia in Rheumatoid Arthritis

Moderate anemia is a common feature of rheumatoid disease but one to which little attention has been paid; its origins remain obscure and its treatment is frequently unsatisfactory, despite the introduction of intravenous iron preparations. The presence of anemia may hinder adequate physical or orthopedic treatment and may produce a degree of lassitude that considerably aggravates the joint disability. This anemia, therefore, seemed worthy of study and investigation of three aspects are reported: (1) Changes in peripheral blood and bone marrow. (2) Blood, plasma, and corpuscle volumes. (3) Alterations in iron metabolism.

All patients suffered from typical, active rheumatoid arthritis, uncomplicated by any disease liable to affect hemopoiesis. They received normal hospital diet, with analgesics and hypnotics as needed, but no other drugs were given until investigations were complete.

The patients were partly "selected," by social status and by the fact that this hospital receives a predominance of cases refractory to out-patient treatment, such as gold or simple physiotherapy. However, the series included patients of various ages, differing widely in the severity and duration of their disease, and is believed to represent a fair sample of anemic cases of active rheumatoid arthritis.

The effect of the activity of the disease process upon various features of the anemia was assessed by classifying each case as suffering from slightly, moderately, or very active disease (groups 1, 2, and 3 respectively). In classification, the following factors were considered: the recent progress of the disease; the presence of lassitude, poor appetite, or insomnia; the degree of joint pain and tenderness; the occurrence of fever or loss of weight; and the sedimentation rate.

The anemia was essentially normocytic and hypochromic, the mean corpuscular volume being usually normal, and the mean corpuscular hemoglobin content and concentration usually reduced. Anemia was more pronounced in the presence of very active disease. Undue hemolysis was not of importance.

The myelogram showed no gross abnormality but suggested impaired maturation of normoblasts and retarded hemoglobin formation. The blood and plasma volumes were not essentially abnormal, though the frequent asthenic habitus and loss of weight might produce apparently exalted values in terms of body weight. In the more anemic cases, changes common to many anemias were found, viz., normal plasma volume with decreased corpuscle and whole blood volume. The plasma iron concentration was usually reduced; subnormal values were invariable in cases with very active disease or marked anemia.

The iron-binding capacity of the serum might be raised by iron deficiency or slightly reduced but not enough to be a factor in producing or maintaining anemia. As judged by changes in the plasma iron, intestinal absorption of iron after a single maximal therapeutic dose was variable. Some cases showed the excellent absorption and therapeutic response characteristic of simple iron deficiency. Others gave strong presumptive evidence of impaired absorption. (Blood, June 1953, M.R. Jeffrey, Bath, England)

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The Injured Hand

Of industrial accidents, wounds of the hand constitute 36%, mostly from machinery, sharp objects, and hand tools. Of the silhouette of a man, hands constitute an area of 6%. Therefore, when the air is full of flying missiles there occurs that percentage of hand wounds. Also injuries to the main nerves anywhere in the length of the arm cripple the hand.

Hand wounds when compared with other wounds are more prone to infection and to result in permanent disability.

From an experience of examining thousands of crippled hands in both civil and military practice, 6 main types of crippling were found to be prevalent, namely: (1) stiffening of the hand in the position of nonfunction; (2)

flexion contractures; (3) skeletal malalignment; (4) loss of function from tendon and nerve injuries; (5) ischemic contractures; and (6) trophic or vasomotor conditions.

For a plan of procedure, the wound should be covered by a sterile dressing and the patient taken to a well-equipped surgery where definitive treatment can be done under the best surgical conditions.

The limb is shaved and washed with soap, water, and, when necessary, gasoline, and the wound is thoroughly irrigated with normal salt solution. Precautions are taken against contaminating the wound with more virulent organisms than those from the injury by using aseptic technic, mask, gown, and gloves.

Following careful examination and diagnosis, an over-all plan of procedure is made and carried out in this acute stage. The limb is rendered bloodless by pneumatic tourniquet and is debrided atraumatically. All usable parts are saved, especially nerves and tendons. Fractures are set; digits are placed in the position of function and so they will be opposable. Cover is supplied, saving maximal length of thumb and giving workable cover to digit stumps. If a digit is discarded, its skin with vessels and nerves may be utilized for cover.

Damage at first was solely from the injury but later many complications that are preventable may be superimposed. These can be ascribed to the treatment. They comprise stiffening in the position of nonfunction and the other of the six types of crippling described. Stiffness is avoided by prevention of infection and avoiding the swelling by elevation, compression, and activity. Flexion contractures are avoided by prevention of infection, early cover, and avoiding long existing open wounds. Excessive granulation tissue should be avoided and the position of function maintained. The position of function is maintained by attention to the key joints, dorsiflexing the wrist and flexing the proximal finger joints, curving the metacarpal arch and partially opposing the thumb. Elastic splints will change the position of the hand from that of nonfunction to that of function. Early definitive surgery prevents malalignment of bones by setting fractures and reducing dislocations early. Also tendons and nerves can be repaired, the latter generally with one temporary stainless steel wire stitch. Nerve repair should have priority over the rest of the limb. Ischemic contractures and vasomotor disturbances can be avoided by clear understanding of these conditions and avoiding the cause of ischemia. (Industrial Medicine and Surgery, June 1953, S. Bunnell)

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Carcinoma of the Breast During Pregnancy

A questionnaire dealing with problems relating to carcinoma of the breast occurring in pregnancy was submitted to a number of physicians considered to be well informed on the subject. The replies have been tabulated and analyzed. Some features of the disease as it is seen in pregnancy are discussed, and some of the factors responsible for its poor prognosis are considered. The response to the survey indicates that the results of the treatment of carcinoma of the breast occurring in pregnancy are very disappointing.

The prognosis of carcinoma of the breast developing during pregnancy, though poor, need not be invariably hopeless. Occasional instances of 5-year cure have been reported. For this reason none of the respondents considered pregnancy to be a factor which in itself would cause the disease to be inoperable.

Termination of pregnancy in patients with cancer of the breast seems to be indicated, particularly if the growth is discovered during the first half of gestation.

There is general agreement that subsequent pregnancies should be avoided by women who have had mammary carcinoma. Most physicians thought that conventional contraceptive measures would be adequate and that operative sterilization was not advisable. A few observers were impressed with the value of surgical castration.

Whether pregnancy may increase the chances of carcinoma developing in the remaining breast remains an unsettled point. Most of those who replied to the questionnaire thought that it would not.

It appears that any hope for the improvement of the prognosis of carcinoma of the breast occurring in pregnancy lies in the recognition of the growth at an early stage when it is still clinically operable. For this reason obstetricians should be encouraged to examine the breasts of their patients carefully and at frequent intervals. It seems likely that instruction of the patients concerning techniques of examination of their own breasts may be of considerable value. (Arch. Surg., May 1953, J. H. Cheek)

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N-Allylnormorphine

It is well known that the incidence of neonatal depression is greater if analgesics and sedatives are administered to the mother prior to delivery. Nevertheless, most obstetricians and mothers are willing to accept this increased hazard in exchange for relative comfort during labor. Various agents have been proposed for the prevention or treatment of infant depression caused by narcotics, but none has proved completely satisfactory. The

recent demonstration that n-allylnormorphine safely and effectively antagonizes respiratory and circulatory depression caused by opiates suggested the possible value of this compound for prevention of neonatal depression. The drug could be administered to the baby either through the placental circulation by predelivery injection to the mother or directly to the infant shortly after delivery. This article is a report of an investigation of this use of n-allylnormorphine conducted at the Hospital of the University of Pennsylvania.

Data for this study were obtained from 1,100 patients admitted to the obstetrical service for a 7-1/2 month period. This group included all but 250 patients delivered at or after the twenty-eighth week of pregnancy. The 250 patients eliminated were those delivered by cesarean section or those who delivered vaginally with insufficient time to prepare and give the injection within a reasonable period prior to delivery. For the statistical analyses presented, the following patients were excluded: those who received the drug less than 4 or more than 25 minutes before delivery; those in whom part of the solution had extravasated or in whom multiple injections had been made; and those patients with twin pregnancies or obviously traumatic vaginal deliveries.

N-allylnormorphine was not implicated in any of the infant deaths and did not significantly depress the infants if administered to normal unsedated mothers. In view of the well-known depressant effect of ether on newborn infants, n-allylnormorphine should not be administered to mothers given ether anesthesia.

Suggestive evidence was obtained that if n-allylnormorphine was administered too far in advance of delivery, effectiveness of the drug disappeared and the infants were actually slower in breathing than were the controls. It was difficult to establish the exact time interval, but it appeared to be about 25 minutes. This explains why patients who had their injection more than 25 minutes before delivery were excluded from the analysis. The optimal interval between injection and delivery seemed to be from 5 to 15 minutes.

The undesirable effects of n-allylnormorphine apparent in this study were the increased number of resuscitations required in the group given ether for anesthesia, and the cortical depressant effects noted in unsedated mothers. The latter observation would not be a real objection to the clinical use of the drug in obstetrics, nor would a slight depressant effect in infants born of unsedated mothers, because it is obvious that an opiate antagonist would not be employed if opiates had not been given to the mother. A prolongation of narcosis following nitrous oxide anesthesia would definitely be undesirable, because it might increase the hazard of respiratory obstruction or aspiration of vomitus.

No attempt has been made to correlate the total dose of opiate administered to the mother with the effectiveness of n-allylnormorphine because of the variable response to a given dose of opiate. Some of the most pro-

found depressions the authors have seen have been with relatively small doses of analgesics and in contrast some mothers were reasonably alert after large doses of opiates and were delivered of well-oxygenated infants who cried immediately. It might, however, be worth while to correlate time of administration of opiates with effect of n-allylnormorphine. This the authors did not attempt.

No effort was made to change the dose of n-allylnormorphine. In the authors' study a single dosage was used for uniformity of data. It is reasonable to believe that the deeper the maternal depression the larger the dose of antagonist required. Therefore, it is probable that had the authors used larger doses of n-allylnormorphine for the heavily depressed patients, a more significant effect on the infants might have been apparent. However, these larger doses would probably produce an analeptic effect on the mother, a result not particularly desirable immediately before delivery.

The authors' data suggest that the principle values of n-allylnormorphine in obstetrics are: (1) In the treatment of apnea neonatorum due to maternal opiate sedation. In this circumstance it is best employed in 0.2 mg. doses in 2 cc. of normal saline and injected into the umbilical cord vein. (2) In the prevention of neonatal depression in infants born of mothers depressed with opiates and given regional anesthesia or nitrous oxide for delivery. Here the optimal dose is 10 mg. injected intravenously into the mother 5 to 15 minutes prior to delivery. In deeply depressed mothers, 15 mg. might be more efficacious. (Am. J. Obst. & Gynec., June 1953, J. E. Eckenhoff, G. L. Hoffman, Jr., and L. W. Funderburg)

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Kartagener's Syndrome in Children

The triad of situs inversus, bronchiectasis, and sinusitis has borne the name of Kartagener since this author in 1933 collected 11 cases. The first case was reported by Siewert in 1904, in a 21-year-old white male, the symptoms having been present since infancy. The literature has been recently well reviewed by Bergstrom, Cook, Scannell, and Berenberg. They collected 80 cases, including 2 of their own in a family where 2 additional siblings suffered from bronchiectasis and sinusitis without dextrocardia, and the father from sinusitis only. Zuckerman and Wurtzebach in 1951 accepted 40 cases which they collected from the literature as fulfilling the clinical requirements for acceptance to this disease. Their own case was in a 63-year-old white male, with symptoms dating back to childhood.

In Bergstrom's and his colleagues' series only 16 of the 80 collected cases showed undisputable evidence of bronchiectasis roentgenologically, but in the larger percentage of those in whom history was available, the symptoms dated back to infancy or early childhood and in 90% symptoms

were present before the age of 14 years. Richards reported a case in which symptoms were present on the third day of life.

Many cases described in the recent literature have been of dextrocardia without complete situs inversus, and as these have been generally accepted as valid cases, it would now probably be more fitting to describe the syndrome as consisting of dextrocardia, bronchiectasis, and sinusitis.

In 5 new cases of dextrocardia, 4 had complete situs inversus, 1 dextrocardia only. The case coming to necropsy was found to have other anomalies of the heart. All of the children had pulmonary atelectasis, 1 on the same side as the heart, the other 4 on the left side. Four had bronchiectasis in the collapsed lobes on the left, 1 (the youngest) beginning bronchiectasis or prebronchiectatic changes on the right. All 5 children had clinical evidence of sinusitis, 4 had roentgenologic evidence, and in 1, the infant, the sinuses were undeveloped. Four of the cases were in girls, 1 in a boy. The ages at which the disease was diagnosed were 6 weeks, and 4, 9, 10, and 14 years. The 10- and 14-year-old patients were sister and brother. All 3 children having lobar resections showed considerable improvement of their pulmonary symptoms.

It is the author's belief, influenced by a study of the literature and of his own cases, that the sequence of events in the development of Kartagener's syndrome is: (1) congenital anomaly of the cardiovascular system (dextrocardia, sometimes with other anomalies); (2) atelectasis; (3) bronchiectasis; and (4) sinusitis. That the early development of bronchiectasis is influenced by a developmental error in the bronchi themselves is possible, but direct proof is still lacking. There is considerable circumstantial evidence that a congenital factor of some sort is of importance.

The treatment of this disease consists of resection of the affected pulmonary tissue as soon as the patient is deemed a good surgical risk. The age of the patient in the younger years, after the neonatal period, need not be considered in making the decision. Treatment of sinusitis is indicated, although it is usually not nearly so successful as that of the bronchiectasis. (Dis. Chest, June 1953, L. B. Dickey)

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Accidental Injury to Ureters and Bladder in Pelvic Surgery

The primary operations complicated by accidental ureteral injuries are, in order of frequency: radical hysterectomy, abdominal complete hysterectomy, supracervical hysterectomy, vaginal hysterectomy, salpingo-oophorectomy for chronic inflammatory lesions, anterior colporrhaphy, and radical operation for carcinoma of the rectum and rectosigmoid. The types of injury reported have been ligation, division, partial excision, crushing by clamp, partial ligation by perforation with needle, kinking by ligature, laceration, and necrosis secondary to contusion or denudation. Unilateral injury is about 6 times as frequent as bilateral injury.

The responsibility for the prevention of these accidents and their prompt recognition rests squarely with the gynecologist or surgeon who performs the primary operation. It is also his responsibility to call in expert aid when he merely suspects that a ureter has been compromised because the life of a kidney and often the life of the patient are at stake.

It is highly advisable for gynecologists and surgeons to have a urologic survey made in every patient in whom pelvic or vaginal surgery is contemplated. This implies excretory urography which may disclose unsuspected anomalies, malpositions, dilatations, et cetera. If the information thus derived is inadequate or inconclusive, cystoscopic and retrograde study may be needed.

The introduction of inlying catheters into the ureters by cystoscopy immediately before pelvic surgery has been urged time and again by gynecologists and urologists. They may well be left in for 24 hours. This precaution will undoubtedly protect both the patient and the operator from untoward accident. It will also fortify the surgeon's medico-legal position in the event that an incident occurs, a situation unlikely to arise with this precaution taken.

If injury to a ureter occurs and is observed during operation, immediate repair by uretero-ureterostomy or ureterocystostomy, preferably with an inlying catheter splint, should be done. Ligation of the injured ureter should be abandoned, even when it is known that the other side is completely normal. It spells sure death and destruction of one kidney, and may lead to sequelae requiring subsequent nephrectomy. Temporary external drainage is preferable (ureterostomy through a lateral incision in the ureter) in an emergency situation.

If, after pelvic surgery, persistent distention, flank pain, and/or ureteral pain appear, the possibility of unilateral ureteral injury should always be in mind. An excretory urogram, circumstances permitting, or cystoscopic observation with indigo carmine intravenously will settle the issue.

If unilateral impairment is detected early, nephrostomy, pyelostomy, or ureterostomy is the procedure of choice. The author prefers nephrostomy. If not detected early there may be silent death of the kidney. Otherwise extravasation or urinary fistula by way of the vagina, or abdominal wound will give the kidney temporary relief and supply obvious evidence to the surgeon of what has taken place. The sooner direct urinary drainage is established the better. In rare instances this may be accomplished with the cystoscope and ureteral catheter.

If a ureterovaginal, ureterocervical, or uretero-abdominal fistula ceases to drain urine, do not be lulled into a false sense of relief. It may spell the death of the kidney. It may be followed by the clinical manifestations of pyelonephritis or pyo-ureteronephrosis. This may vitiate one's chances to save the kidney even by nephrostomy, and certainly renders subsequent procedures less likely to succeed despite the availability of potent antibiotics. Infection is the chief cause of failures.

If soon after operation urinary output drops or ceases, never assume that it is due to "suppression" or "reflex anuria," investigate the ureters at once by cystoscopy.

If bilateral obstruction is ascertained, it is the author's firm conviction (and others are in accord) that deligation should not be attempted. If the abdominal route was used, remember that the patient has recently undergone a lengthy procedure probably associated with blood loss and shock. The operation contemplated is difficult and requires simultaneous cystoscopic assistance. If the original procedure was vaginal the deligation is no less difficult and one will necessarily destroy the pelvic floor repair in the attempt.

Nephrostomy, at least unilateral, preferably bilateral is the first choice. It is life saving. It permits subsequent flexibility of approach to the final solution of the problem. If in due time the offending catgut ligatures are absorbed one may, rarely, require only ureteral cystoscopic dilatation to save life and kidneys. Restoration of bilateral ureterovesical continuity may be established at leisure and in two stages.

Never omit the dye test for vesicovaginal fistula. It may be a difficult diagnosis to rule out. It may occur concomitantly with ureteral injury.

Ureterocystostomy seems to be the best procedure for repair of damage to the lower ureter with oblique implantation of the free end of the damaged ureter and a catheter splint for kidney drainage. (J. Urol., June 1953, P. W. Aschner)

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The Treatment of Carcinoma of the Prostate With Radioactive Gold

The authors' anatomic classification of carcinoma of the prostate according to extent of disease is: (1) the tumor is small, freely movable, and confined within the capsule of the gland; (2) there is extension beyond the capsule but no evidence of metastasis outside the pelvis; (3) evidence of distant metastasis. Because of the silent nature of the disease, only a small percentage falls into the first classification--in the authors' hospital, about 5%. The second category includes 40 to 60%, while the remainder show distant metastasis and are put in the third group. Young found 3.4% curatively operable while Barringer considered 4.5% localized in the gland.

The authors are, at present, in agreement with those who state that the best treatment for cases in Group 1 is radical surgery, but one of the difficulties is an accurate preoperative determination of the extent of the lesion. For example, Jewett found that of 89 cases without clinical evidence of spread, 32 had microscopic extension beyond the prostate. The authors' own experience is similar and they have found themselves in error in both directions. Assuming, then, an operability rate of 5 to 10%, there

is still the 40 to 60% of cases who have no demonstrable metastases and yet are obviously beyond hope of "cure" by surgical means.

Since the discovery by Huggins of the effects of female hormones or orchiectomy on carcinoma of the prostate, most urologists and radiologists have been content to abandon hope of curing these patients and have treated them palliatively and expectantly. This attitude is justified when metastases to bone are evident on roentgenographic examination, or are suspected from phosphatase determinations or when there is a huge mass with evident spread outside the gland and throughout the pelvis.

Between this group and the obviously operable cases, however, there is a large number of cases who, in the authors' opinion, should be given the benefit of some attempt at cure. If surgery for these patients is insufficient, perhaps some combination of surgery and irradiation would be worth while.

Acting on this thought over the past few years, the authors have tried roentgen therapy alone, or roentgen treatment and radon seeds with only an occasional good result. Many others have used radiation in its various aspects. None considered that radiation as then used was the answer to this serious problem. Sufficient radiation can be given to destroy the tumor, but adjacent normal structures, notably the rectum and bladder, suffer from too much radiation and are grossly injured. With the advent of Au¹⁹⁸ whose main radiation component is beta rays, the prostate seemed an ideal site in which to try this new isotope.

The authors have reported on 50 cases of carcinoma of the prostate treated by the injection of Au¹⁹⁸ with a follow-up of from 6 to 17 months. A total of 129 cases were treated long enough to observe that about 98% showed prompt and rapid decrease in the size of the palpable neoplasm. Cases in Group 2 are best suited for this method of therapy. Eleven of thirty-seven cases with postinjection biopsies showed no evidence of neoplasm.

Of the 50 cases, 27 are alive without evidence of clinical disease and 7 died without evidence of carcinoma. Eight are alive with clinical disease, and 8 died with the disease.

Complications were almost exclusively confined to rectal irritation. There were 15 cases in the first 50 and 3 in the subsequent 67 who had this complication. Four developed rectal ulcers, 3 of which required colostomy. Careful injection and estimation of dosage were considered the most important desiderata in this method of therapy.

The closest collaboration between the urologist and a radiologist well versed in isotope therapy must be assumed. (Am. J. Roentgenol., June 1953, H. D. Kerr, R. H. Flocks, H. B. Elkins, and D. Culp)

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The Hard of Hearing Patient

According to available statistics, approximately 1 out of every 10 persons has a hearing impairment.

Impaired hearing is of three types: (1) conduction or middle ear loss, (2) perception or nerve loss, and (3) otosclerosis, which is often a combination of both middle ear and nerve involvement.

Any pathologic condition that interferes with the transmission of sound vibrations to the inner ear (cochlea and auditory nerve) results in a conduction hearing loss. This interference may be present in the external ear canal, in the middle ear, or in the eustachian tube. External ear canal obstruction is most commonly due to ceruminosis, furunculosis, or foreign bodies. The function of the ear drum may be interfered with by perforation, edema, or fibrosis (scars). Sound transmission through the middle ear may be impaired as a result of ossicular chain involvement such as dislocation, articular disease or necrosis, or of the presence of fluid, either serous or purulent, in the middle ear. Eustachian tube obstruction results in pressure changes within the middle ear and likewise interferes with sound transmission. Tubal obstruction may be due to altitude changes, inflammatory or allergic edema, or adenoid hypertrophy.

The diagnosis of conduction hearing loss is made on the basis of subjective and objective findings, tuning fork tests, and audiograms.

Treatment of the patient with a conduction hearing loss depends on correction of the underlying pathologic condition or on furnishing adequate substitution.

Any pathologic condition which interferes with the function of the cochlea or the pathways of the auditory portion of the eighth nerve results in perception or nerve loss. These conditions include congenital malformations, allergy (edema of the cochlea), infection (labyrinthitis), acute and chronic systemic disease, drug sensitivities (alcohol, quinine, nicotine, streptomycin, et cetera), nervous system disease (multiple sclerosis, syphilis, eighth nerve tumors), hemorrhage, acoustic trauma (blast injury), occupational deafness (prolonged exposure to high levels of noise), skull fractures which involve the temporal bone, and others. Arteriosclerotic changes in later life cause a common type of nerve impairment seen in older persons, known as presbycusis.

Unfortunately the medical and surgical treatment of perceptive hearing impairment is for the most part unsatisfactory. Once the nerve is damaged, the condition is permanent. Therefore treatment is directed not toward improving the individual's hearing but rather toward preventing further nerve loss.

A hearing aid is of most benefit in cases of nerve impairment if the low tones and the high tones have deteriorated in about the same proportion. When the low tones have remained relatively good and the high tones are impaired, the use of a hearing aid becomes more difficult because of the

amplification of the low tones. In marked nerve impairment, rehabilitation and auditory training with lip reading and speech conservation are essential. If the loss is congenital in origin, proper speech training must begin in the preschool age if the child is to be rehabilitated. The pathologic change in clinical otosclerosis consists of a developmental proliferation of the bone involving the area about the footplate of the stapes and the oval window which separates the middle ear from the inner ear. The exact cause, other than that it is hereditary in nature, is not known.

Perhaps no other group of persons has been subjected to more treatment without benefit than patients with otosclerosis. Repeated eustachian tube inflations, nose treatment, nose and throat surgery, eardrum massage, and various diets, endocrines, vitamins, and minerals have all been put through their paces without noticeable benefit. When benefit has been derived, one is led to believe that the diagnosis of otosclerosis was in error, for it is difficult when one visualizes the underlying disease to understand how such therapy could have much reward.

Some 15 years ago, Lempert developed the first satisfactory surgical technique which could be employed routinely in these cases. Since then he and others have modified the procedure until now the bony window made over the labyrinth remains permanently patent in all but 5% of the cases in which the operation is performed. If the opening closes it will usually do so within the first 6 months after surgery and the hearing then regresses to the preoperative level.

Today the patient with otosclerosis has two choices when his hearing loss becomes pronounced: (1) the hearing aid, and (2) the fenestration operation.

The hearing aid will give satisfactory results in early otosclerosis, as in all cases of conductive impairment. Ultimately, if the otosclerotic process progresses, a hearing aid becomes increasingly difficult to wear and the patient must turn to rehabilitation and lip reading, just as in the case of advanced nerve impairment.

The fenestration operation is indicated in any case of otosclerosis in which the eardrum is intact and the nerve function is capable of transmitting the normal ranges of conversation to the brain. The degree of nerve function present is determined by tuning fork tests and audiometric readings. If these qualifications are present, the chances are 2 out of 3 that serviceable hearing can be permanently restored by the fenestration operation.

When a patient with a hearing loss seeks aid, the following course is advisable: 1. A complete personal and family history must be carefully and accurately obtained. 2. A thorough physical and otologic examination including complete hearing tests is essential. 3. After establishing the correct diagnosis and etiology, the entire problem should be carefully and fully explained to the patient and reassurance given that he will not become totally deaf. This is the chief concern of every person with a hearing loss. 4. The underlying cause should be eliminated when possible and medical

and/or surgical treatment instituted when indicated. 5. If a hearing aid and rehabilitation measures such as lip reading and speech conservation are the procedures of choice, it is the physician's duty to direct the patient to the proper sources for this type of therapy. 6. The facts and prognosis should be completely explained in order to obtain full patient cooperation; this is essential if the person with a hearing loss is to get the most out of the future in spite of the existing handicap. (Postgraduate Medicine, June 1953, H. P. House)

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Selection of Sonar Operators

A report released by the U. S. Naval Medical Research Laboratory, Submarine Base, New London, Conn., concerns the current program of research in the selection of sonar operators for the newest types of submarines. The group of research psychologists and physiologists conducting investigations in the Sound Branch has been concerned with the development of techniques for the selection of operators of sound detecting equipment. A long series of reports has appeared in the scientific literature concerning various aspects of hearing which have to do with the effectiveness of sonar operators, such as pitch discrimination, loudness discrimination, and speech intelligibility. The latest paper shows how this Submarine Force research group endeavors to keep abreast of engineering developments in sound equipment, and even to anticipate the situation which will obtain when the atomic submarine is an actuality.

As each new type of sonar equipment is developed, men with different types of hearing ability may be needed to operate the equipment to best advantage. Recent advances in the development of undersea weapons, including submarines with greater underwater speed, and the prevalent signs of the coming of the true submersible--a vessel built for continuous underwater operation--turns attention on the selection and training of the sonar operator. He is the key man in this new situation, for the effective performance of this ultramodern equipment depends on him.

In order to find the best men for the job it is necessary to make a detailed survey of what the job requires of the man. The Medical Research Laboratory is undertaking to do this by a technique of interviewing key officers in the attack parties of New London based submarines,--in most cases the Commanding Officer, Executive Officers, and Sonar and/or Communications Officers. These officers were asked to sort out from a large list of sonar operator's duties the half dozen or so which they believe to be crucially important in all submarine sonar work. With this knowledge as a background, tests are being devised to measure the proficiency with which any submarine sonar operator performs his task. The aptitudes, auditory abilities, interests, and psychological traits of operators will then be de-

terminated by the various tests, in an effort to see which are most predictive of ultimate sonar operating ability.

Preliminary results of the attack-party interviews clearly show that in submarine sonar operation the ability to detect targets at extended ranges or under poor listening conditions is of paramount importance, with the capacity to work calmly under all conditions and to maintain close concentration throughout a watch period next most significant. There appears to be little agreement that sensitive hearing itself is of basic value to the gathering of usable sonar data. (U. S. Naval Medical Research Laboratory, New London, Conn., June 1953)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Navy Medical School, National Naval Medical Center, Bethesda 14, Maryland, giving full name, rank, corps, and old and new addresses.

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Navy Industrial Health Conference

The Fifth Annual Navy Industrial Health Conference was held in Los Angeles, Calif., 17-23 April 1953. Although only the fifth consecutive conference, the Navy industrial or occupational health program had its inception prior to World War II. The importance of industrial health programs and their impact on production was realized early. The Bureaus of Aeronautics, Medicine and Surgery, Naval Personnel, Ordnance, Ships, Supplies and Accounts, Yards and Docks, U. S. Marine Corps, Office of Naval Operations, and Office of Naval Research are now participating actively in this program. From a small beginning the Conference has grown so that each conference is bigger and better. More interest is being evinced by both staff and line components of the Navy. More medical officers are attending each year and more Navy bureaus are represented or more widely represented each year.

All naval activities having an industrial health program in which a certain minimum number of employees are participating are required to submit a monthly report to the Bureau of Medicine and Surgery. Throughout the Navy 125 activities are required to submit such a report. In the 11th, 12th, and 13th Naval Districts, 40 activities submit this report. On the Pacific Coast, 123 medical officers participate to some degree in the industrial health program. In addition, there are also many nurses, industrial hygienists, and industrial health officers in the program.

Encouragement, assistance, and advice should be available for medical officers in the smaller industrial activities. Often medical officers who have had little or no experience in the industrial program are assigned to smaller activities. In this field the utilization of an industrial health officer at the District level is invaluable. An industrial health officer, trained as an industrial hygienist, has been assigned to the staff of the Inspector of Medical Activities on the West Coast. This officer is available to assist and advise any Navy or Marine Corps activity on industrial health matters.

The Bureau of Medicine and Surgery plans to have available in each Naval District an industrial health officer whose services will be available to all naval establishments within the District. Commanding officers and senior medical officers should call upon the district medical officer for assistance when necessary.

The industrial health program at the level of the larger activity is well organized and supported by experienced medical officers who have staffs consisting of industrial hygienists, chemists, industrial nurses, et cetera. The industrial health program at smaller activities needs the support and assistance of the District or Sea Frontier industrial health officers..

The industrial health officer assigned to the Office of the Inspector acts, through the inspector, as the representative on the West Coast of the Industrial Health Section of the Bureau of Medicine and Surgery. This is the first step in decentralization of immediate control and it is believed to be a forward step to improve the program. (Address by Rear Admiral A. H. Dearing (MC) USN, representing the Surgeon General)

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Training Course in Field Medicine

The first course for the Fiscal Year 1954 in Field Medicine for Naval Reserve MC, MSC, and HC officers is scheduled to convene at the Marine Corps Barracks, Camp Pendleton, Oceanside, Calif., on 17 August 1953.

The course is of 2 weeks' duration and is designed to provide specialized training in field medicine including practical instruction in medical material logistics, preventive medicine in the field, professional treatment of emergencies, and medical organization with Fleet Marine Units. In addition, the trainee will receive practical instruction of a military nature including the maintenance and use of small arms, items of individual equipment, practical march, and bivouac.

The Commandants of the 11th, 12th, and 13th Naval Districts, have been assigned a quota for this course. Inactive Naval Reserve MC, MSC, and HC officers residing in the 11th, 12th, and 13th Naval Districts who desire to attend this course should submit their request to the Commandant of their home naval district at the earliest practicable date. Bachelor Officers' Quarters will be available. Working uniform is required.

It is desired to invite Inactive Naval Reserve personnel's attention to the fact that attendance at this course WILL NOT, in any way, increase the possibility of involuntary recall to active duty. Eligible officers are encouraged to take advantage of this opportunity to attend this course on active duty for training orders in a pay status. (Res. Div., BuMed)

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From the Note Book

1. The Committee on Ophthalmology of the Division of Medical Services of the National Research Council has adopted the following statement of its conclusions: "Because of the total lack of evidence that the lens antigen treatment of cataract described in Science, 12 Sept 1952 has any efficacy; and because treatments of this type have been thoroughly investigated in the past and proved not only invalid but potentially dangerous to the patient, this Committee does not recommend further investigation of this treatment by any agency." (J. A. M. A., 20 June 1953, Special Article, See News Letter, Vol. 20, No. 7, page 25)

2. 1952 statistics show that the Navy will realize a tangible savings in excess of \$15,000,000 from the Navy's Beneficial Suggestion Program. Twenty-two thousand, nine hundred suggestions were adopted with \$628,500 awarded to those making the suggestions. The Navy Beneficial Suggestion Program is an organized plan for all employees to share their thinking with management and to receive appropriate recognition for their contribution towards economy and efficiency in the operation of the Navy and the Federal Government. (OIR Newsletter, June 1953)

3. Dr. B. O. Raulston, Dean, University of Southern California School of Medicine, was elected President of the National Board of Medical Examiners at the annual meeting of the Board. Dr. Raulston succeeds Dr. H. T. Karsner, Research Advisor to the Surgeon General of the Navy. (The Diplomat, May-June 1953)

4. Two main problems are presented in the modern development of food processing and production affecting the consumer: (1) the possibility of introduction into food of substances which confer toxic properties; (2) the degradation of the nutritional qualities of food by the abstraction or reduction of some of its important constituents by air and water. (Dental Digest, June 1953, Sir E. Mellanby, Middlesex, England)

5. Captain Ashton Graybiel (MC) USN, has been chosen President-Elect of the American College of Cardiology. The College will hold its third annual convention in Chicago, Ill. Captain Graybiel will be installed as President at this meeting for a 1-year term of office. One of the

nation's leading heart specialists, Captain Graybiel is currently assigned as the Coordinator of Medical Research, Naval School of Aviation Medicine, Pensacola, Fla. (TIO, BuMed) '

6. Five staining procedures supplementing the Papanicolaou procedure, used in studying the metabolic changes in cervical cells as they pass from normal to precancer to frank malignancy are described. (Am. J. Obst. & Gynec., June 1953, B.C. Hopman)

7. A symposium reviewing the present knowledge of clinical hemoglobinometry and directing attention to the need for establishing uniform technics and standards of measurements appears in the American Journal of Clinical Pathology, June 1953, F.W. Sunderman, R.P. MacFate, D. A. MacFadyen, G.F. Stevenson, and B.E. Copeland.

8. Triethylene melamine (TEM), a nitrogen mustardlike compound is an important addition to the chemotherapeutic agents used in palliative treatment of lymphoma and leukemia. (Ann. Int. Med., June 1953, O.W. Burtner, L.C. Jensen, and J.M. Rumball)

9. In the past 3 years approximately 350 burn patients at Brooke Army Hospital have been treated by the exposure method. The results indicate that this method is practicable in the event of catastrophe and worthy of consideration in treatment of burns in peacetime. (Postgraduate Medicine, June 1953, C.P. Artz, E. Reiss, J.H. Davis, and W. M. Amspacher)

10. Hypersensitivity reactions to oral PAS have been studied in 255 adults with active tuberculosis with special reference to incidence, characteristic clinical features, diagnosis, seriousness of the reaction, and value of a desensitization program. Ten cases (4%) demonstrating this reaction are reported. (Dis. Chest, June 1953, R.H. Hayes and M. Weiss)

11. A review of standard statistical methods as they apply to practical problems met in dentistry is presented in a report "Analysis in Dental Research." Each chapter includes a number of references and a list of suggested reading. (O. T. S., Dept. of Commerce)

12. Erythroplasia of Queyrat is a precancerous lesion in which the etiology is unknown and 20 to 40% degenerate into malignant epitheliomas. (J. Urol., June 1953, J.W. Merricks and T.L.C. Cottrell)

13. A review of the clinical uses of hyaluronidase appears in Surgery, June 1953, R.C. Britton and D.V. Habif.

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BUMED INSTRUCTION 6700.4

11 June 1953

From: Chief, Bureau of Medicine and Surgery
To: Ships and Stations Having Medical/Dental Personnel Regularly Attached

Subj: Replacement schedules for medical and dental items

Ref: (a) BuMed Inst. 4442.1

Encl: (1) Listing of replacement schedule items
(2) Format of replacement schedule

This instruction provides a listing of items for which submission of a replacement schedule is required, and indicates the format to be employed in submission.

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BUMED NOTICE 7303

15 June 1953

From: Chief, Bureau of Medicine and Surgery
To: Distribution List

Subj: Accounting data under appropriation, Medical Care, Navy, 1954

Ref: (a) BuMed Inst. 7303.4
(b) Paragraph 023304, NavComp Manual (Change 11)

This notice informs ships and fleet operating units of accounting data applicable to obligations incurred under authority of references (a) and (b). under the appropriation, Medical Care, Navy.

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BUMED INSTRUCTION 7303.5

15 June 1953

From: Chief, Bureau of Medicine and Surgery
To: All Shore Stations Having Medical and/or Dental Facilities

Subj: Instructions relative to modification of allotments under the Appropriation Medical Care, Navy

Ref: (a) Article 24-13, Manual of the Medical Department
(b) BuMed Inst. 7301.2
(c) Chapter 2, Volume 3, NavComp Manual

Encl: (1) Format to be used in request for modification of allotments under Appropriation Medical Care, Navy

This instruction revises the procedure for requesting an increase or decrease of funds allotted under the Appropriation Medical Care, Navy.

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BUMED NOTICE 1530

15 June 1953

From: Chief, Bureau of Medicine and Surgery
To: Distribution List

Subj: U. S. Navy Aviation Selection Tests; information relative to revision of forms and procedures of

Ref: (a) BuMed Inst. 1530.1

This notice informs cognizant field and fleet activities of the forthcoming revision of the U. S. Navy Aviation Selection Test battery. The tests will be divided into two parts. A revised manual of instructions and answer sheets for the test battery are being prepared. Detailed instructions for disposing of obsolete test forms and the inaugural date of the new test battery will accompany the test materials.

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BUMED INSTRUCTION 1741.1

15 June 1953

From: Chief, Bureau of Medicine and Surgery
Chief of Naval Personnel
Commandant of the Marine Corps
To: All Ships and Stations

Subj: Life insurance disability claims

This instruction sets forth the procedure for submission of claims for disability benefits under National Service Life Insurance and United States Government Life Insurance by eligible disabled members of the Navy and Marine Corps on active duty. BuMed C/L 44-53 and 44-272 are cancelled.

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BUMED NOTICE 12275

22 June 1953

From: Chief, Bureau of Medicine and Surgery
 To: National Naval Medical Center
 Naval Hospitals (continental)
 Subj: Industrial Relations Institute; schedule for fiscal year 1954;
 revision of

This notice announces the revised Industrial Relations Institute schedule for fiscal year 1954. BuMed Notice 12275 of 11 Mar 1953 is cancelled. Dates of Sessions.

24 August - 4 September 1953
 14 September - 25 September 1953
 5 October - 16 October 1953
 26 October - 6 November 1953
 30 November - 11 December 1953
 11 January - 22 January 1954
 8 February - 19 February 1954
 1 March - 12 March 1954
 22 March - 2 April 1954
 26 April - 7 May 1954
 17 May - 28 May 1954
 7 June - 18 June 1954

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BUMED INSTRUCTION 6510.3

22 June 1953

From: Chief, Bureau of Medicine and Surgery
 To: All Ships and Stations Having Medical Corps Personnel
 Regularly Assigned
 Subj: Laboratory services available at U. S. Naval Medical School,
 National Naval Medical Center, Bethesda 14, Maryland;
 directions for utilization of
 Ref: (a) BuMed Inst. 6510.2 of 16 Oct 1952
 Encl: (1) Laboratory services provided by U. S. Naval Medical School

This instruction describes, through enclosure (1), the laboratory services of the U. S. Naval Medical School which are extended to the Service at large. BuMed C/L 51-46 is cancelled.

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BUMED INSTRUCTION 1520.6

23 June 1953

From: Chief, Bureau of Medicine and Surgery
To: Commandants, all Naval Districts (less 10, 15, and 17)
Commandant, Potomac River Naval Command
Commanding Officer, NNMC, Bethesda, Maryland
Commanding Officers, Continental Naval Hospitals

Subj: Medical Reserve Training Program

Encl: (1) Enclosure (1) to SecDef memo of 24 Apr 1953

This instruction promulgates the operating policies established by the Secretary of Defense with respect to symposia conducted by teaching hospitals of the Armed Forces for Medical Department Reserve Components. Where symposia are conducted jointly for the Medical and Dental Reserve Programs, or where there are dental personnel invited to participate, the symposia should be titled Medico-Dental or Medical and Dental.

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PREVENTIVE MEDICINE SECTION

Communicable Disease Control

Acute Anterior Poliomyelitis in the Navy, 1950 and 1951

The incidence of poliomyelitis in the Navy during 1950 and 1951, the latest years for which complete data are available, was reviewed for the purpose of estimating the amount of gamma globulin which would have been required for prophylaxis had the material been employed for the theoretical protection of intimate contacts of patients with established diagnoses of paralytic and nonparalytic poliomyelitis. The estimate could then be used to arrive at a requirement for the immediate future.

During 1950, there were approximately 1,600 ships and stations submitting morbidity reports; in 1951, there were about 1,900 as at present. From Table 1 it is seen that poliomyelitis in service personnel appeared at

less than 5% of these activities. There were 50 activities in 1950 and 68 activities in 1951 where only 1 case appeared, an observation which indicates that the occurrence of 1 case is ordinarily not followed by an outbreak. This confirms a conclusion reached by Ingalls and Rubenstein in

Table 1. --New Cases, Paralytic and Nonparalytic Poliomyelitis, Navy and Marine Corps, 1950-1951

Naval activities and patients admitted	Year	
	1950	1951
Total activities	60	89
Total patients	73	127
Paralytic	54	93
Nonparalytic	19	34
Patients per activity	1.2	1.4

their report concerning the expectancy of outbreaks of the disease in camps and schools. These authors observed, however, that in the age group they were studying, when 2 or more cases appeared within 5 days in a camp or school, spread occurred in 7 of 10 occasions (1). When the Navy data were tested in the same manner, it was discovered that, although 2 ships and stations in 1950, and 12 in 1951, admitted 2 patients within 5 days, subsequent cases (occurring within 35 days of the second case) appeared at only 5 activities. At these 5 activities, all but 1 of the subsequent cases (7 in number) appeared within 5 days, 3 appearing within 2 days. From the foregoing, it would appear that if prophylaxis had been administered to contacts under age 30 after the appearance of the first case at an activity, or even after the appearance of 2 cases within 5 days, a great many individuals might have received an expensive and time-consuming inoculation, with little or no satisfaction in terms of illness prevented. If the incidence of paralytic poliomyelitis were to have been substantially reduced during the 2 years, prophylactic inoculations should have been given, perhaps, to all susceptible personnel in the Navy prior to the beginning of the season of increased prevalence, and, because it produces only passive immunity, repeated at intervals of 6 to 8 weeks throughout the season. Obviously this would be impracticable.

From Tables 2 and 3, it appears that the incidence rates among hospital and dental enlisted personnel differed only slightly from the rates for Navy, and that there were only 4 cases among other medical department personnel during the 2 years. The unusual incidence at the U.S. Naval

Hospital, Oakland, Calif., where 5 hospital corpsmen were admitted with either paralytic or nonparalytic poliomyelitis during the week of 16 to 23 April 1951, none being admitted thereafter until 21 August 1951, was unique; because it is unexplained, it is not certain, therefore, that the cases were

Table 2. --Incidence of Paralytic and Nonparalytic Poliomyelitis
According to Type of Personnel, 1950-1951

Diagnosis	Number of Cases					
	1950			1951		
	Entire Navy	Enlisted medical and dental	All other Medical Department personnel	Entire Navy	Enlisted medical and dental	All other Medical Department personnel
Total	73	4	1	127	10	1
Paralytic	54	3	1	93	6 (1)	1
Nonparalytic	19	1	-	34	4 (2)	-

(1) Four patients admitted at U. S. Naval Hospital, Oakland, Calif.

(2) Three patients admitted at U. S. Naval Hospital, Oakland, Calif.

Table 3. --Paralytic Poliomyelitis, Rate per 1,000 Average Strength,
All Navy, and Enlisted Medical and Dental

Personnel	Rate per 1,000 average strength	
	1950	1951
Navy	0.100	0.116 (1)
Medical and Dental		
Enlisted	0.168	0.203 (1)

(1) When the patients at U. S. Naval Hospital, Oakland, Calif., are removed, the rate for the Navy is 0.097 and for medical and dental enlisted 0.067.

due to exposure to patients. At only one other naval hospital was a single corpsman admitted for the disease during the 2 years.. From this it appears that the communicable disease precautions generally observed may be sufficient to prevent appearance of disease in attendants, and that there is little justification for routinely using gamma globulin prophylaxis for such personnel.

In conclusion, the experience of 1950-1951 indicates that there is little likelihood of spread of acute anterior poliomyelitis in ships and stations, even after the appearance of 2 clinically diagnosed cases within 5 days, and therefore the small store of gamma globulin, poliomyelitis, immune (human) which has been held in reserve for prophylactic use for military personnel may be more than adequate to provide for the rare instances in which multiple cases appear within 5 days or a week and the circumstances are such at spread may be expected to occur. Furthermore, the data do not provide a firm justification for the inoculation of personnel attending patients, if communicable disease precautions can be observed.

(1) Ingalls, T. H. and Rubenstein, A. D. : Expectancy of Outbreaks of Poliomyelitis in Camps and Schools. Am. J. Pub. Health 40: 555-560, May 1950.

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West Nile Fever

Since July 1950 there have been annual outbreaks of West Nile fever of epidemic proportions in the Israeli Army camps and in some of the villages of Israel, but no outbreaks in the immigrant camps. In one Army camp during the 1950 outbreak 60% of the population became ill. In Kibbutz Maayan Tsevi 140 people of a total population of 375 became ill, the majority of the cases being children.

The disease was characterized by a sudden rise in temperature to 39.5° C. followed by a gradual decrease to normal over a 1- to 6-day period; headache, conjunctival injection, and lymphadenopathy in various parts of the body in nearly all cases; a roseoliform rash in some cases; and elevated blood sedimentation rate, leukopenia, and a relative lymphocytosis, routinely observed. The incubation period was from 3 to 6 days. Except for 4 cases of meningitis, the disease has been mild in nature; there have been high morbidity rates but no fatalities so far.

The following factors give evidence of an insect vector: (a) The peak and the decline of disease incidence corresponds with the appearance, period of maximum multiplication, and disappearance of Culex molestus. (b) The first 25 cases in Kibbutz Maayan Tsevi occurred among people who lived nearest the breeding areas of this species of mosquito. (c) Strict quarantine of an Army camp did not prevent spread of the disease. (d) A virus was isolated at the Epidemiological Laboratory in Tel Aviv from the blood of patients in the various epidemics occurring in different areas of the country. This virus was found to be antigenically identical with one isolated from C. molestus found in two of the areas where cases of West Nile fever were occurring. (e) The virus has been transferred biologically

not simply mechanically, from hamster to hamster by C. molestus in the laboratory. (Personal communication from Dr. E. Eylan of the Epidemiological Laboratory, Ministry of Health of Israel, and Major Shaul Kochwa, Chief Hygiene Officer of the Israel Defense Army, both of Tel Aviv)

(Note: NAMRU 3 in Cairo, Egypt, is taking a principal role in a study of this newly defined clinical entity. West Nile fever virus was originally isolated at the Rockefeller Laboratory in Entebbe, Uganda. Later it was found, by accident, in the blood of three rural Egyptians by Dr. John Paul of Yale University during a poliomyelitis survey. Dr. Richard Taylor of the Rockefeller Foundation and head of the Department of Virology of NAMRU 3 is presently engaged in an intensive study of the epidemiologic aspects of the disease. Commander H. S. Hurlbut, Navy entomologist, is studying the vector aspects of transmission. Indications are that West Nile fever may prove to be a disease of both military and civilian importance. The evidence already indicates that the virus is widespread in the Middle East and that it will soon be reported from other areas.)

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Intestinal Protozoal Parasites in Naval Personnel

The widespread use of antibiotics may have indirectly reduced the incidence of amebiasis in the Navy. That this may be so is indicated by the results of stool examinations carried on at the Naval Medical School, and at Preventive Medicine Units and Fleet Epidemic Disease Control Units; in which the finding of Endameba histolytica appears to be diminishing in frequency.

An intestinal protozoa survey by Saperro and Johnson, as recorded in the U.S. Naval Medical Bulletin for April 1939, has interesting current implications. A 3-stool examination of 1,021 men of the Navy revealed 11.6% infections with E. histolytica. This incidence closely agrees with the average 10% incidence reported for the general population of the United States. The major proportion of the infections in naval personnel were incident to residence in the United States, prior to naval service, as indicated by 14.7% infections in recruits from the southeastern part of the country, and 7.8% in those from other parts of the United States.

For men on duty afloat in the American tropics, a highly endemic region for dysentery, the incidence was 9.5%. On the other hand, for men returning from the Asiatic Theater 26.1% infections were found.

There was no evidence of transmission of the dysentery organisms aboard naval vessels. In submarines, selected as a type of ship in which dissemination was most likely to occur, the percentage of infections was 9.6.

For every 1,000 carriers of the dysentery organism in the Navy, there were 4.6 cases of amebic dysentery, but it was stressed that the

actual morbidity from E. histolytica might be greater than these statistics indicated.

The incidence of 17.1% of Dientamoeba fragilis found in one group was one of the highest reported in the United States.

No large-scale survey on a 3-stool examination basis has been conducted on naval personnel since this survey was carried on 14 years ago. It would therefore be of interest to determine whether any change in general incidence has occurred in the Navy.

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Ingested Salmonella in a Species of Cockroach

Feces from healthy human donors were inoculated with varying doses of Salmonella typhimurium (2 strains) or S. montevideo (2 strains) and the survival of the organisms during storage in closed containers at 15° to 25° C. was determined. An appreciable proportion of the number introduced could be recovered in all trials after 2 days, frequently after 5-7 days, sometimes even after 14 days.

Adult Periplaneta americana which had been starved for a week were allowed to feed on uninfected human feces; the quantity ingested in a single meal was estimated to be approximately 0.02-0.1 gram.

Similarly starved P. americana were allowed to feed on human feces to which varying numbers of Salmonella had been recently added; after an interval of 2 or 7 days, the alimentary tracts were removed and cultured for the presence of these organisms. Survival in the gut was demonstrated to occur fairly regularly and to persist for at least 7 days when the insects had ingested in feces approximately 10⁴ or more viable S. typhimurium (strain 5609) or S. montevideo (strain B-33). With smaller doses, recovery of the Salmonella fed was obtained only rarely. The limited data obtained with a second strain of S. montevideo (5327) suggested that it had somewhat less ability to persist than strain B-33.

Although the cockroach Periplaneta americana appears to have some mechanism for eliminating many hundreds of ingested Salmonella, if the insect eats feces containing at least several thousand of these micro-organisms it may thereafter continue to harbor certain strains for at least a week. (Am. J. Trop. Med., Nov. 1952, R.C. Jung and M.F. Shaffer)

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The printing of this publication has been approved by the Director of the Bureau of the Budget, June 23, 1952.

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Venereal Disease Control

Study of Terramycin as a Prophylaxis for Venereal Disease

The incidence of gonorrhea among personnel of the U. S. Navy in foreign areas has been greatly reduced where use of oral penicillin as a prophylaxis is authorized and encouraged. Little progress has been made, however, in reducing the incidence of chancroid and of nongonococcal urethritis, against which oral penicillin is ineffective.

The oral penicillin prophylaxis program has been successful because of the acceptability of this form of prophylaxis and because of its effectiveness in preventing gonorrhea. The need has been to find another antibiotic which embodies all the advantages of oral penicillin as well as the additional feature of aborting chancroid and nongonococcal urethritis.

Terramycin has been used effectively in treating gonorrhea, chancroid, and nongonococcal urethritis. It is believed that this agent, if taken within a few hours after exposure, may be effective in preventing these diseases. A study will be made employing terramycin in 250-mg. tablets after exposure, as a prophylaxis for venereal disease. It will be conducted aboard the aircraft carrier Franklin Delano Roosevelt in the Mediterranean area.

The terramycin study program will be administered in a manner similar to the oral penicillin program. Men returning from liberty who have been exposed will request the tablet, if they desire to do so. Care will be taken to determine whether there have been any failures of the drug to protect against venereal disease, to detect any untoward reactions occurring after its use, and to evaluate its acceptability to the man as a prophylaxis.

Insect and Rodent Control

A Coordinated Pest-Control Program

Since World War II, the Bureau of Medicine and Surgery has borne a major part of the responsibility for pest control because of its interest in the control of disease vectors. During recent years, there has been greater realization of the extensive losses to the Navy from destruction by pests of buildings and stored products, as well as the need for more effective operational support of medical department recommendations for vector control. As a result, the Bureau of Yards and Docks has recently activated a Pest-Control Section by appointment of an entomologist.

The development of an efficient public works pest-control program for the Naval Shore Establishment will be of great value to the Medical Department and to the Navy. Safe and efficient pest-control operations

with the many new methods and materials require better qualified supervising and operating personnel than in the days when control measures often implied little more than a spray gun. The limited number of specially qualified medical and public works personnel available will require the utmost coordination for efficient utilization and provision of adequate technical services in all areas. Discussions between the Bureau of Medicine and Surgery, Bureau of Yards and Docks, and other interested bureaus and field activities have developed basic areas of agreement on pest-control responsibilities which will be covered in detail by future instructions. In general, it appears that the medical department will be responsible for the determination of the presence of disease vectors, including identification, geographical distribution, biology, ecology, habits, and disease-transmission cycles, and for technical guidance in vector-control measures in all areas. The technical supervision, fiscal administration, and accomplishment of control operations against all pests, including vectors, would be the responsibility of the public works department throughout most of the Shore Establishment. Specially qualified medical personnel will be utilized for technical supervision of control operations, however, in the operating forces, advanced bases, Marine divisions, and in certain areas of the Shore Establishment to be specified by the Bureau of Medicine and Surgery and the Bureau of Yards and Docks. It is expected that entomologists on the staff of the district public works offices will be available eventually in most naval districts, but development of an adequate program throughout the Shore Establishment will necessarily require considerable time. If neither medical nor public works entomologists are available through district headquarters, technical questions may be referred to the medical department and if not resolved, to the Bureau of Yards and Docks or the Bureau of Medicine and Surgery according to the nature of the problem involved. Supervision of pest control, where a public works officer is not assigned, would be a responsibility of the medical department or medical representative of the activity concerned.

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DDT Still the No. 1 Weapon Against Malaria

In the Terai region of northern India 77 out of 100 children were victims of malaria in 1950. In 1951, however, this was reduced to 3 out of 100 children. This was the result of a house-by-house, wall-by-wall campaign with spray pumps and DDT in every village in the Terai. Indirect results of this campaign against malaria are an increase of 30% in the production of food grains and an increase of 40,000 acres in land farmed. A 6-year plan for malaria control in the Philippines with the assistance of the Mutual Security Agency will employ similar techniques. (WHO Newsletter, May 1953)

INDUSTRIAL MEDICINE

Safety Standards for Hospital Operating Rooms

Standards for safety procedures to prevent explosions in hospital operating and delivery suites are being revised by a tri-service committee on which the Bureau of Medicine and Surgery is participating. Because the Army, Navy, and Air Force are now using common construction plans and specifications in new buildings, have mutual problems in rehabilitating existing medical facilities, and secure equipment and materials from a common medical supply source, it is essential that basic policies and unified procedures be established. The revised standards will be promulgated in the near future, probably as a Department of Defense directive.

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Permit No. 1048

OFFICIAL BUSINESS

WASHINGTON 25, D. C.

DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, \$300